

Tip & Tricks :

No Hose Heat? Try the “Divide & Conquer” Approach, by Barry Taft

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If you have been in the spray foam business very long, you are no stranger to the problem of hose heat failures. It is without question the most likely failure of the equipment used in applying polyurethane foam.

When you try to troubleshoot lack of hose heat, try the “divide and conquer” method of troubleshooting – a systematic approach to determine where the problem lies. Only trained and qualified operators who have read the manuals should perform repairs on the equipment.

All **hose heat** systems (regardless of the equipment manufacturer) require the following components to operate:

1. Path of electricity – In order for heat to be generated, we need voltage applied to an electrical resistance conductor. In our business, this is the heated hose. Think about it. If you had to identify the one component that by its very nature is used and abused, then you would agree it is the hose. It is constantly dragged, bent, stepped on, run over, pulled into attics and crawl spaces. You get the idea. The first check that should be performed is hose continuity. With the power off to the machine, we need to check for hose continuity by removing the hose from the machine and measuring the resistance out, through the whip hose and back. The measurement should be less than two ohms. If your problem is high hose current, then the second test is to check for a

hose section short “cross connection” by confirming that there is no continuity when we disconnect the whip hose from the gun end.

2. After confirming the hose continuity is OK, then we need to check the hose heat transformer circuit protection devices. Most machines have a circuit breaker or fuse protecting the hose heat transformer “primary” high voltage side, and the “secondary” stepped down low voltage side.
3. Voltage present – After verifying we have a path for the electricity to work, then we need to confirm that we have 15 vac to 100 vac at the transformer “secondary” voltage side. The voltage expected will be based on the length of hose you have on your machine. The rule of thumb is 15 vac for each 50-foot section of hose we have connected. If we have voltage on the secondary, then we know the hose heat transformer, the voltage control, usually a Solid State Relay (SSR) Phase controller, or heat control board or module are working. If not, then we need to work our way back - in other words, “divide and conquer.”
4. Is the heat controller calling for heat? Most machines have a controller that sends a low voltage DC signal (5 – 32 vdc) to turn on the SSR or phase controller, to send the higher voltage AC to power the hose. They all have indicator lights O1 typically or LED’s on the control board that indicate a call for heat.
5. Finally we need to check the temperature feedback device - the fluid temperature sensor, temperature sensing unit, hose thermocouple, or a remote mounted thermometer out by the operator with a manual hose heat system. We use three types of thermocouple junctions: type “E” (10 ohms @70°F) on all Graco and Gusmer units; type “J” (33 ohms @ 70°F), or type “T” (5 ohms @ 70°F) on GlasCraft units. One way to easily check the hose sensor is to connect it directly to the machine, bypassing the hose sensor wire to see if we then read a temperature on our controller display.